(8 pages)

Reg. No. : .....

Code No. : 6454 **Sub. Code : ZITM 11/ ZNTM 11**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

First Semester

Information Technology/Networking and Information Technology – Core

MATHEMATICAL FOUNDATION OF INFORMATION TECHNOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following is not a possible ordered pair for a matrix with 6 elements.

(a) (2,3) (b) (3,2)

(c) (1,6) (d) (3,1)

2. $AA^{-1} = A^{-1}A$ is a condition for ——————

(a) Singular matrix

(b) Nonsingular matrix

(c) Matrix inversion

(d) Ad joint of matrix

3. A _____ is an ordered collection of objects.

(a) Relation (b) Function

(c) Set (d) Proposition

4. Let A and B be two events such that P(A)= 1/5 While P(A or B) = ½. Let P(B) =P. For what values of P are A and B independent?

(a) $1/10$ and $3/10$ (b) $3/10$ and $4/5$

(c) $3/8$ only (d) $3/10$

5. If ${}^{n}P_{r} = 3024$ and ${}^{n}C_{r} = 126$ then find n and r.

(a) 9, 4 (b) 10,3

(c) 12,4 (d) 11, 4

6. Find the number of rectangles and squares in an 8 by 8 chess board respectively.

(a) 296, 204 (b) 1092, 204

(c) 204, 1092 (d) 204, 1296

7. $p \vee q$ is logically equivalent to ———————

(a) $\neg q \rightarrow \neg p$ (b) $q \rightarrow p$

(c) $\neg p \rightarrow q$ (d) $\neg p \rightarrow q$

8. Which of the following statement is incorrect?

(a) $p \vee q \equiv q \vee p$

(b) $\neg(p \wedge q) \equiv \neg p \vee \neg q$

(c) $(p \vee q) \vee r \equiv p \vee (q \vee r)$

(d) $p \rightarrow q \equiv \neg p \vee \neg q$

9. Berge graph is similar to ——————— due to strong perfect graph theorem.

(a) line graph (b) perfect graph

(c) bar graph (d) triangle free graph

10. Let D be a simple graph on 10 vertices such that there is a vertex of degree 1 a vertex of degree 2, a vertex of degree 3, a vertex of degree 4, a vertex of degree 5, a vertex of degree 6,a vertex of degree 7, a vertex of degree 8 and a vertex of degree 9. What can be the degree of the last vertex?

(a) 4 (b) 0

(c) 2 (d) 5

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Show A,B be complex 2×2 matrices satisfying the relation $A = AB - BA$. Prove that $A^2 = O$, where O is the 2×2 zero matrix.

Or

(b) Select values of the parameter λ, will the following equations fail to have unique solution:
$3x - y + \lambda z = 1,\ 2x + y + z = 2,\ x + 2y - \lambda z = -1$
by rank method.

12. (a) Solve an overpriced department store, there are 112 customers. If have purchased shirts, 57 have purchased pants, and 38 have purchased neither, how many purchased both shirts and pants?

Or

(b) In set $A = \{1, 2, 3, 4, 5, 6, 7, 8\}$, and set $B = \{3, 5, 7, 9, 11, 13\}$ Find,

(i) $A \cup B$

(ii) $A \cap B$

(iii) $(A \cap B)$

13. (a) Suppose a soccer team scores at least one goal in 20 consecutive games. If it scores a total of 30 goals in those 20 games, prove that in some sequence of consecutive games it scores exactly 9 goals.

Or

(b) Suppose that 101 positive integers are arranged in a circle. The sum of all the numbers is 300, Prove that you can always choose a consecutive sequence of numbers which sum to 200.

14. (a) If for every formula F there is another formula F0 in CNF such that $F \equiv F0$. Write procedure of converting a formula in CNF terminates.

Consider a set of balls that are labelled with positive numbers. We can replace a k labelled ball with any number of balls with labels less than k. Using K"oing lemma, show that the process always terminates. Hint in the above theorem, the bag is the subformulas of F(G).

Or

(b) Solve $G = (V, E)$ be an undirected graph with vertex set V and edge set E. A 3- coloring of G is a map $\chi : V \to \{R, B\ Y\}$ such that if $\{x, y\} \in E$ then $\chi(y)6 = \chi(y)$. (Here R, B, Y represent the colors red, blue, yellow.)

15. (a) How many isomorphism classes are there for simple graphs with 4 vertices? Draw them.

Or

(b) How many more edges are there in the complete graph K_7 than in the complete graph K_5.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)

16. (a) If $A = \begin{pmatrix} 1 & 1 & -1 \\ 2 & -3 & 4 \\ 3 & -2 & 3 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & -2 & 3 \\ -2 & 4 & -6 \\ 5 & 1 & -1 \end{pmatrix}$, then find the rank of AB and the rank of BA.

Or

(b) Show that the equations $5x + 3y + 7z = 4$, $3x + 26y + 2z = 9$, $7x + 2y + 10z = 5$ consistent and solve them by rank method.

17. (a) In a poll of 100 pupils, the no. of pupils studying the various languages were studied. It was found that the number of pupils studying: English is only about 18. English but not Hindi is 23, both English and Sanskrit is around 8, English is 26, Sanskrit is about 48, Sanskrit and Hindi both is 8 again, and no language is 24. Find

(i) How many pupils were study Hindi?

(ii) How many pupils were studying English and Hindi?

Or

(b) Write the set $A = \{1,4, 9, 16, 25,...\}$ in set-builder form.

18. (a) If a box contains 6 red, 8 green, 10 blue, 12 yellow and 15 white balls. What is the minimum no. of balls we have to choose randomly from the box to ensure that we get 9 bails of same color?

Or

(b) In how many of the distinct permutations of the letters in MISSISSIPPI do the four 'IS' will come together?

19. (a) Find whether the following compound propositions are tautologies or contradictions or contingency.

(i) $(p \wedge q) \neg (p \vee q)$

(ii) $((p \vee q) \neg p) \rightarrow q$

(iii) $(p \rightarrow q) \leftrightarrow (\neg p \rightarrow q)$

(iv) $((p \rightarrow q) \wedge (q \rightarrow r)) \rightarrow (p \rightarrow r)$

Or

(b) Write truth table and check whether the statements $\neg(p \vee q) \vee (\neg p \wedge q)$ and $\neg p$ are logically equivalent.

20. (a) Write proofs for each of the valid sequents below. (The first four express De'morgan's laws, and the last four assert $\wedge$ distributes over $\vee$, and $\vee$ distributes over $\wedge$.) Also state and prove the sequents expressing the commutativity of $\wedge$ and $\vee$.

$$\neg P \vee \neg Q \rightarrow \neg(p \wedge Q)$$
$$\neg(P \wedge Q) \rightarrow \neg P \vee \neg Q$$
$$\neg(P \vee Q) \rightarrow \neg P \wedge \neg Q$$
$$\neg P \wedge \neg Q \rightarrow \neg(P \vee Q)$$
$$(P \vee Q) \wedge R \rightarrow (P \wedge R) \vee (Q \wedge R)$$
$$(P \wedge Q) \vee (Q \wedge R) \rightarrow (P \vee Q) \wedge R$$
$$(P \wedge Q) \vee R \rightarrow (P \vee R) \wedge (Q \vee R)$$
$$(P \vee R) \wedge (Q \vee R) \rightarrow (P \wedge Q) \vee R$$

Or

(b) Prove that at a meeting of at least 6 people, there are always 3 that mutually know each other, or 3 that mutually do not know each other.

———————

(7 pages)

Reg. No. : .....

Code No. : 6455 **Sub. Code : ZITM 12/ ZNTM 12**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

First Semester

Information Technology / Networking and Information Technology – Core

DISTRIBUTED OPERATING SYSTEM

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A parent process calling _____system call will he suspended until children processes terminate.

   (a) Wait (b) Fork

   (c) Exit (d) Exec

2. If the resources are always preempted from the same process _____ can occur.

(a) Deadlock (b) System crash

(c) Aging (d) Starvation

3. Which one of the following is the deadlock avoidance algorithm?

(a) Banker's algorithm

(b) Round-robin algorithm

(c) Elevator algorithm

(d) Karn's algorithm

4. Every time a request for allocation cannot be granted immediately, the detection algorithm is involved. This will help identify _____.

(a) The set of processes that have been deadlocked

(b) The set of processes in the deadlock queue

(c) The specific process that caused the deadlock

(d) All of the mentioned

5. When a page is selected for replacement, and its modify bit is set _____.

(a) The page is clean

(b) The page has been modified since it was read in from the disk

(c) The page is dirty

(d) The page has been modified since it was read in from the disk and page is dirty

6. Optimal page – replacement algorithm is difficult to implement, because _____.

(a) It requires a lot of information

(b) It requires future knowledge of the reference string

(c) It is too complex

(d) It is extremely expensive

7. Which of the following belongs to transaction failure?

(a) Read error

(b) Boot error

(c) Logical error

(d) All of the mentioned

8. Which is connection oriented and which is connection-less?

   (a) Datagrams, virtual circuits

   (b) Virtual circuits, datagrams

   (c) Datagrams

   (d) None of the mentioned

9. The model in which one user-level thread is mapped to many kernel level threads is called _____.

   (a) Many to One model

   (b) One to Many model

   (c) Many to Many model

   (d) One to One model

10. Termination of the process terminates _____.

   (a) First thread of the process

   (b) First two threads of the process

   (c) All threads within the process

   (d) No thread within the process

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain about the types of advanced operating system.

Or

(b) Determine the models of deadlock condition.

12. (a) Illustrate the communication primitives.

Or

(b) Discuss about the non-token based algorithm.

13. (a) Demonstrate the distributed resource management.

Or

(b) Explain about the shared memory with example.

14. (a) Describe the approaches of recovery.

Or

(b) Classify non-blocking commit protocols and voting protocols.

15. (a) Explain about memory management.

Or

(b) Illustrate about features of android os.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Discuss about the function of operating system.

Or

(b) Illustrate the advanced operating system.

17. (a) Explain about types of clocks.

Or

(b) Demonstrate the brief token based algorithm.

18. (a) Discuss the distributed file system.

Or

(b) Determine history of distributed shared memory.

19. (a) Compare between the synchronous and asynchronous check pointing and recovery.

Or

(b) Difference between static routing and dynamic routing.

20. (a) Classify about Multiprocessor and database operating system with example.

Or

(b) Describe about of threads unit examples.

———————

Reg. No. : .....

Code No. : 6456 **Sub. Code : ZITM 13/ ZNTM 13**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

First Semester

Information Technology / Networking and Information Technology

ADVANCED DATABASE MANAGEMENT SYSTEMS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which language is used for specifying the database schema and other properties of the data?

(a) DDL (b) DML

(c) E-R (d) DBA

2. Which subsystem compiles and executes DDL and DML statements?

   (a) Storage manager

   (b) Query processor

   (c) Transaction management

   (d) Application program

3. Transactions are required to have the _____ properties.

   (a) DBA (b) Stable storage

   (c) ACID (d) RAID

4. To ensure serializability, we can use various _____ schemas.

   (a) Concurrency Control

   (b) Synchronization

   (c) Transaction

   (d) None of the mentioned

5. Spatial databases are also known as:

   (a) Geo databases

   (b) Mono databases

   (c) Concurrent databases

   (d) None

6. Among the following, which is not a type of spatial query?

(a) Nearness queries (b) Region queries

(c) Union/Intersection (d) Join

7. The basic object in XML is the XML ————————

(a) project (b) document

(c) model (d) schema

8. Which is a standard for specifying the structure of XML document?

(a) XML data

(b) XML query languages

(c) XML schema language

(d) All of the above

9. Which databases permit the database system to store a history of changes and allow users to query both current and past states of the database?

(a) Temporal

(b) Logic based

(c) Multimedia

(d) Relational

10. The image _____ describes the geometric shape of the raw image, which is typically a rectangle of cells of a certain width and height.

(a) Shape descriptor (b) dots

(c) pixel (d) All of the above

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Summarize the functional dependencies in detail

Or

(b) Define Normalization. Explain second normal form in detail.

12. (a) Discuss Two-Phase locking protocol in detail.

Or

(b) Evaluate the structured types in object based databases.

13. (a) Outline the characteristics of spatial database.

Or

(b) Examine the usage of predicate calculus in logic based databases.

14. (a) State the function of XML schema.

Or

(b) Explain the structure of XML databases.

15. (a) Discuss the features of temporal databases.

Or

(b) Elaborate the applications of multimedia database.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Illustrate the Entity-Relationship model in detail.

Or

(b) Categorize Intraoperation parallelism in detail.

17. (a) Elaborate the distributed transactions with example.

Or

(b) Discuss Concurrency control in detail.

18. (a) Elaborate the techniques of spatial database query.

Or

(b) Explain about Recursive Query Processing in detail.

19. (a) Illustrate the hierarchical data model in XML.

Or

(b) Differentiate between Document Type Definition and XML schema.

20. (a) Summarize how packing and unpacking of relations are carried out.

Or

(b) Demonstrate the operations of the relational model.

———————

(6 pages) **Reg. No. :** .....

Code No. : 6457 **Sub. Code : ZITM 14/ ZNTM 14**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

First Semester

Information Technology / Networking and Information Technology

PYTHON PROGRAMMING

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which is a set of instructions for solving a class of problems by a mechanical, unintelligent process?

   (a) Pseudo code (b) Algorithm

   (c) Statement (d) All

2. _____ execute a program in a high-level language by translating it one line at a time

(a) Interpreter (b) Compiler

(c) Both (a) and (b) (d) None

3. _____ is the meaning of the program.

(a) expression (b) data type

(c) semantics (d) data

4. Which is a file that contains a collection of related functions and classes?

(a) def (b) module

(c) tables (d) function call

5. Which symbol is used as modulus operator?

(a) # (b) %

(c) $ (d) &

6. The process of calling the function that is currently executing is called

(a) Repetition (b) Recursion

(c) Duplication (d) None

7. Identify the mutable data types

(a) lists (b) tuple

(c) dictionary (d) Both (a) and (c)

8. A list of integers in which each element counts the number of times something happens is known as _____

(a) Pattern matching

(b) Deterministic

(c) Histogram

(d) Mutable

9. The _____method reads all the characters up to and including the next newline character.

(a) readline

(b) readlines

(c) read

(d) append

10. An error that occurs at runtime is called _____

(a) exception

(b) debugging

(c) bug

(d) unconditional

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write the pseudo code to calculate the sum and product of two numbers and display it.

Or

(b) Differentiate Recursion and Iteration.

12. (a) Define Module. Explain the types of modules.

Or

(b) Explain the types of arguments in python with example.

13. (a) Illustrate a program to sum an array of numbers.

Or

(b) Illustrate 'for loop' with an example.

14. (a) Appraise the operations for dynamically manipulating dictionaries.

Or

(b) List the operators supporting lists.

15. (a) List the format operators with example.

Or

(b) Illustrate how to copy files in python.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Summarize the difference between algorithm, flowchart and pseudo code.

Or

(b) Write an algorithm to sort a list of numbers in ascending order.

17. (a) Categorize the types of data available in python.

Or

(b) Summarize function definition and its use with an example.

18. (a) Summarize the different types of operators with example.

Or

(b) Compare global and local scope of a variable with example.

19. (a) Write a script in python to sort *n* number using selection sort.

Or

(b) Compare the difference between list and tuple.

20. (a) What are modules in python? How will you import them? Explain the concept by creating and importing a module.

Or

(b) Write a Python program to illustrate the use of command-line arguments.

———————

(6 pages) **Reg. No. :** .....

Code No. : 6458 **Sub. Code : ZITM 15**

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022

First Semester

Information Technology

COMPUTER NETWORKS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. ———————— are widely used to connect personal computers and consumer electronics to let them share resources.

   (a) PAN (b) LAN

   (c) WAN (d) MAN

2. ———————— is a reliable connection-oriented protocol

   (a) TCP (b) UDP

   (c) FTP (d) ICMP

3. The process of converting between bits and signals is called

   (a) Line Coding

   (b) Masking

   (c) Digital Modulation

   (d) Multiplexing

4. The codec makes _____ samples per second

   (a) 5000 (b) 4000

   (c) 7500 (d) 8000

5. SLIP stands for_____

   (a) Synchronous Line Internet Protocol

   (b) Serial Line Internet Protocol

   (c) Systematic Linear Internet Protocol

   (d) Serial Link Internet Protocol

6. In _____ the chance of collision can be reduced if a station senses the medium trying to use it.

   (a) MA (b) CSMA

   (c) FDMA (d) CDMA

7. Alternate and adaptive routing algorithm belongs to _____

(a) Static routing

(b) Standard routing

(c) Dynamic routing

(d) Permanent routing

8. Which among the following is not the principle of Network Layer in the Internet

(a) Expect Homogeneity

(b) Make clear choices

(c) Exploit Modularity

(d) Keep it simple

9. The art of breaking chips is known as _____

(a) cryptology

(b) intruder

(c) cipher text

(d) cryptanalysis

10. The SMTP protocol is used for _____

(a) Email

(b) File Transfer

(c) Media Player Control

(d) Remote Login

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain LAN.

Or

(b) Illustrate TCP/IP models.

12. (a) Describe Microwave Transmission

Or

(b) Mention Data Link Layer Design Issues.

13. (a) Describe Internet Control Protocols.

Or

(b) Explain One-Bit Sliding Window Protocol.

14. (a) Explain about Store and Forward Packet Switching

Or

(b) Illustrate IP Addresses

15. (a) Illustrate about Cryptography.

Or

(b) Write about Crash Recovery.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain Guided Transmission Media.

Or

(b) Illustrate OSI reference model.

17. (a) Explain Wireless Transmission.

Or

(b) Describe Multiplexing and its types.

18. (a) Write a detail note about Elementary Data Link Protocols.

Or

(b) Illustrate Multiple Access Protocols.

19. (a) Explain Network Layer of Internet.

Or

(b) Explain Routing Algorithms.

20. (a) Describe Elements of Transport Protocols.

Or

(b) Explain Internet Transport Protocol - TCP.

———————

(6 pages)

Reg. No. : .....

Code No. : 6459 **Sub. Code : ZITM 21/ ZNTM 21**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Second Semester

Information Technology/Networking and Information Technology — Core

ADVANCED WEB TECHNOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following HTML tag is used to add a row in a table?

   (a) <th> (b) <td>

   (c) <tr> (d) <tt>

2. The HTML tag that specifies a CSS style embedded in an element is called ——————.

(a) Design (b) Style

(c) Modify (d) Define

3. The syntax of the declaration statement which defines the XML version is ——————.

(a) <xml version = “A.0”/>

(b) <?xml version = “A.0”>

(c) <?xml version = “A.0”/>

(d) <xml version = “A.0”>

4. What does DTD stands for in XML?

(a) Direct type definition

(b) Document type definition

(c) Definition type documentation

(d) Document type Declaration

5. What is controller is Laravel ——————?

(a) Handles the request from route

(b) Handles the request from browser

(c) Handles the request from application

(d) Handles the request from directory

6. Which creates a view by placing a file with extension?

(a) .blade.php (b) .view.php

(c) .php (d) .view.blade

7. Which of the following function returns the number of characters in a string variable?

(a) count($variable)

(b) len($variable)

(c) strcount($variable)

(d) strlen($variable)

8. Which of the following method sends input to a script via a URL?

(a) Post (b) Get

(c) set (d) both (a) and (b)

9. Which of the following function is Laravel checks that the desired table exists in the database or not?

(a) Has Table() (b) Hash Table()

(c) Has Tab() (d) Hash Tab()

10. Which class is used in Laravel to handle exceptions?

(a) App\Exceptions\Handlers

(b) App\Exception\Handlers

(c) App\Exceptions\Handle

(d) App\Handlers\Exceptions

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain HTML Link with example.

Or

(b) Explain CSS Border with example.

12. (a) Explain Attribute types.

Or

(b) Explain XML Namespaces with example.

13. (a) Write about the system requirement of LARAVEL.

Or

(b) Explain Laravel Directory Structure.

14. (a) Write about PHP Arrays with Example.

Or

(b) Give detail about PHP function with example.

15. (a) Explain database Connection.

Or

(b) Write about orderBy() and groupBy() command with example.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain about HTML Forms with example.

Or

(b) Explain CSS List with example.

17. (a) Explain XML Namespace with example.

Or

(b) Explain X-Path operator.

18. (a) Explain the various Loose Files in Laravel.

Or

(b) Explain MVC and REST with example.

19. (a) What is session? Explain how to access session.

Or

(b) What are the methods available on session instances? Explain.

20. (a) Explain Select, Insert, Update and delete command.

Or

(b) Explain Handling Exception methods.

———————

(6 pages) **Reg. No. :** .....

Code No. : 6460 **Sub. Code : ZITM 22**

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Second Semester

Information Technology – Core

DESIGN AND ANALYSIS OF ALGORITHM

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. While tracing out the instruction of an algorithm, ———————— is the case that the algorithm terminates after a finite number of steps.

   (a) Input (b) Effectiveness

   (c) Definiteness (d) Finiteness

2. An algorithm A is said to be ———————— if it calls another algorithm which in turn calls A ————————

(a) Recursive algorithm

(b) Direct Recursive algorithm

(c) Indirect Recursive algorithm

(d) None of the above

3. What is the worstcase time complexity of a quick sort algorithm?

(a) $O(n \log n)$ (b) $O(n^2)$

(c) $O(\log n)$ (d) $O(n)$

4. The Merge Sort, Quick Sort, and Binary Search are based on ————————

(a) Greedy Algorithm

(b) Divide and Conquer algorithm

(c) Hash Table

(d) Parsing

5. Which algorithm constructs a minimum cost spanning tree for a given weighted graph

(a) Dijkstrs's algorithm

(b) Floyd's algorithm

(c) Prim's algorithm

(d) Warshall's algorithm

6. The Knapsack Problem when the objective function is to minimize the profit is ————————

(a) Greedy

(b) Back tracking

(c) Dynamic 0/1

(d) Branch and Bound 0/1

7. ———————— is a directed graph in which the vertices are portioned into disjoint sets

(a) Spanning Tree

(b) Binary tree

(c) Multistage Graph

(d) Set and Disjoint graph

8. Which of the following problem is not solved using dynamic Programming?

(a) 0/1 Knapsack Problem

(b) Matrix Chain Multiplication Problem

(c) Edit distance Problem

(d) Fractional Knapsack Problem

9. Backtracking algorithm is implemented by constructing a tree of choices called as ————————

(a) State-Space Tree (b) State-Chart Tree

(c) Node Tree (d) Backtracking Tree

10. The problem of finding a subset of positive integers whose sum is equal to a given positive integer is called as ————————

(a) N-queens Problem

(b) Subset Sum Problem

(c) Spanning Tree

(d) Hamilton Path

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) How do you validate an algorithm?

Or

(b) Write an algorithm for operation on Stack.

12. (a) Explain Binary Search Tree with example.

Or

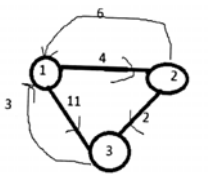
(b) Write an algorithm to find the Maximum and Minimum value in an array.

13. (a) Explain Knapsack problem.

Or

(b) Explain spanning tree with example.

14. (a) The graph has the cost matrix. find A^0, A^1, A^2 and A^3 from the following graph.



Or

(b) Write about 0/1 Knapsack Problem.

15. (a) Give Backtrack Solution to 4-queens Problem.

Or

(b) Write about Hamilton Cycle explain.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain Stack and Queue.

Or

(b) Explain Binary tree with example.

17. (a) Explain Merge sort with example.

Or

(b) Explain Selection sort with example.

18. (a) Explain Prim's algorithm with example.

Or

(b) Explain Huffman code with example.

19. (a) What is multi stage graph? Explain how to find minimum cost path from source to destination with example.

Or

(b) Explain Breadth first search and traversal with example.

20. (a) Explain Graph Coloring and write the algorithm of m-coloring of a graph?

Or

(b) Explain Bounding with example.

———————

(6 pages) **Reg. No. :** .....

Code No. : 6461 **Sub. Code : ZITM 23/ ZNTM 23**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Second Semester

Information Technology / Networking & IT — Core

COMPILER DESIGN

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the output of a lexical analyser?
   (a) Machine code
   (b) Intermediate code
   (c) Stream of tokens
   (d) Parse tree

2. Which data structures are used by compliers to hold information about source-program constructs?

   (a) Stack (b) Queue

   (c) Tree (d) Symbol table

3. Parsing is also known as

   (a) Lexical analysis

   (b) Syntax analysis

   (c) Semantic analysis

   (d) Code generation

4. What type of error does a complier check?

   (a) Logical

   (b) Syntax

   (c) Both Logical and Syntax

   (d) Lexical and Syntax

5. Which analyzer does type checking?

   (a) Lexical

   (b) Syntax

   (c) Semantic

   (d) Logical

6. Which definition specifies the values of attributes by associating semantic rules with the grammar productions?

   (a) Lexical directed

   (b) Syntax directed

   (c) Semantic directed

   (d) Logical directed

7. What is the purpose of using intermediate code?

   (a) improve the register allocation

   (b) increase the error reporting and recovery

   (c) make semantic analysis easier

   (d) increase reuse of machine-independent code optimizer in other compilers

8. In the analysis-synthesis model of a compiler, which generates target code?

   (a) front end (b) rear end

   (c) back end (d) target

9. Which are the fastest computational unit on the target machine?

   (a) Lex

   (b) symbols

   (c) Tokens

   (d) registers

10. Which is the effective technique for locally improving the target code?

(a) code generation

(b) type checking

(c) peephole optimization

(d) compiling

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write a note on symbol table.

Or

(b) Draw the transition graph for an NFA recognizing the language of regular expression (a{b)*abb.

12. (a) Using the notational conventions, write the concise context free grammar of id +-*/( ).

Or

(b) Describe the structure of the LR Parsing table.

13. (a) Give the Syntax-directed definition of a simple desk calculator.

Or

(b) Briefly explain the two strategies for dynamic storage allocation.

14. (a) What is the logical structure of a compiler front end? Explain.

Or

(b) Draw the syntax tree and tabulate triples of the expression $a = b * - c + b * -c$.

15. (a) What are the tasks of a code generator? Explain.

Or

(b) Write a note on flow graphs.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Briefly explain strings and languages and the terms for parts of strings.

Or

(b) Elucidate the role of a lexical analyzer.

17. (a) Draw top-down parse for id + id*id

Or

(b) Write the actins of a shift-reduce parser on input id * id, using the automation.

18. (a) Briefly explain L-attributed definitions.

Or

(b) Briefly explain the use of activation trees.

19. (a) Briefly explain the translation of switch statements.

Or

(b) What is type checking? Explain

20. (a) Briefly explain a simple target machine model.

Or

(b) Describe the DAG representation of basic blocks.

———————

(6 pages) **Reg. No. :** .....

Code No. : 6462 **Sub. Code : ZITM 24/ ZNTM 24**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Second Semester

Information Technology/Networking and Information Technology — Core

MOBILE COMPUTING

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Three tier Architecture is ————————

   (a) Presentation tier, Application tier, Physical tier

   (b) Session tier, Application tier, Data tier

   (c) Presentation tier, Network tier, Data tier

   (d) Presentation tier, Application tier, Data tier

2. ———— is a Software that connects disparate mobile application, Program and System.

(a) Mobile Middleware

(b) Mobile Software

(c) Mobile Hardware

(d) Mobile Computing

3. GUI is used to ————

(a) Browse the information on the screen at their own place

(b) Easily return to previous information

(c) Delete the information

(d) Update the information

4. GPRS is a ———— mobile data service.

(a) Circuit switching technology

(b) Packet switching technology

(c) Hybrid switching technology

(d) Telephonic switching technology

5. Android is a ———— operating system

(a) Windows based

(b) Linux based

(c) MAC based

(d) OS2 based

6. What is the standard form of wi-fi?

(a) Wired fidelity

(b) Wireless fidelity

(c) Wired function

(d) Wireless network

7. In wireless ad-hoc network ————————

(a) Access point is must

(b) Access point is not required

(c) Nodes are not required

(d) All nodes are access points

8. What type of routing is used in VANET?

(a) Single Layer Routing

(b) Cross Layer Routing

(c) Hybrid Routing

(d) Multi-Layer Routing

9. Mobile Security is also known as ————————

(a) OS-Security

(b) API Security

(c) Wireless Security

(d) Database security

10. ————— is the central node of 802.11 wireless operations?

(a) WPA

(b) Access Point

(c) Access Port

(d) WAP

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 250 pages.

11. (a) What are the different types of middleware components and gateways used in mobile computing?

Or

(b) Write about wireless internet in Mobile Computing.

12. (a) How GUI is created? Explain.

Or

(b) What are the benefits of mobile computing?

13. (a) What are the objectives of WI-FI?

Or

(b) What does GPS mean? How does it work?

14. (a) What are the issues in Ad-hoc wireless networks?

Or

(b) Give details about battery management in adhoc wireless network.

15. (a) Write about password security.

Or

(b) What is wireless sensor network? Draw its diagram?

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain Three tier Architecture.

Or

(b) Explain Wireless delivery technology.

17. (a) List out the characteristics of mobile computing.

Or

(b) Explain how to develop VUI.

18. (a) Explain the features of Android?

Or

(b) Explain the organization of J2ME.

19. (a) Explain the types of wireless Adhoc Network.

Or

(b) Explain Transport Layer Protocol.

20. (a) Explain Layered Network Architecture in Wireless Sensor Network.

Or

(b) Explain Transport Layer in Wireless Sensor Network.

———————

(6 pages) **Reg. No. :** .....

Code No. : 6463 **Sub. Code : ZITE 21/ ZNTE 21**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Second Semester

Information And Technology / Networking And Information Technology - Core

Elective — DIGITAL IMAGE PROCESSING

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. An image *f(x, y)*, the amplitude f at any pair of coordinates *(x, y)* is called

   (a) Intensity level

   (b) Black level

   (c) Pseudo level

   (d) Color level

2. In an image *f (x, y),* digitizing amplitude is called

(a) sampling (b) quantization

(c) acquisition (d) sensing

3. Median filter is

(a) Linear spatial filter

(b) Frequency domain filter

(c) Order static filter

(d) Sharpening filter

4. Second-order derivative operator used in spatial enhancement

(a) Gaussian

(b) Histogram

(c) Laplacian

(d) Histogram equalization

5. Which can be defined as a set of connected pixels that forms a boundary between two disjoint regions?

(a) Pixel (b) Lines

(c) Edges (d) Polygon

6. Which edge detection operator is used to detect the orientation and magnitude of an image?

(a) Sobel operator

(b) Canny edge operator

(c) Prewitt operator

(d) Gaussian operator

7. ———————— refers to the process of reducing the amount of data required to represent a given quantity of information

(a) Edge detection

(b) Segmentation

(c) Transformation

(d) Compression

8. Tiff format is

(a) Tagged image file format

(b) Tree image file format

(c) Tagged intensity file format

(d) Template intensity file format

9. ———————— is a morphological operation that is used to remove selected foreground pixels from binary images

(a) erosion (b) dilation

(c) thinning (d) thickening

10. In which processing of images, pixels are added or removed from the images

(a) Filtering

(b) Segmentation

(c) Compression

(d) Morphological

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write about a simple image formation model.

Or

(b) Illustrate RGB color model.

12. (a) Summary the four principal spatial filter types expressed in terms of low-pass filter.

Or

(b) Discuss the relationship between spatial and frequency intervals.

13. (a) What are the types of edges? Describe.

Or

(b) Write about zero-crossing with example.

14. (a) Describe image compression system with neat block diagram.

Or

(b) Write about image compression standards.

15. (a) Describe region-based segmentation.

Or

(b) Write about dilation and erosion.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain sampling and quantization.

Or

(b) Explain color complements with example.

17. (a) Explain low-pass filtering with a Gaussian Kernel.

Or

(b) Summary the steps for filtering in the frequency domain.

18. (a) Explain gradient operators.

Or

(b) Explain Canny Edge deductions with example.

19. (a) Explain Huffiman coding with example.

Or

(b) Explain arithmetic coding with example.

20. (a) Explain segmentation by Morphological water sheds.

Or

(b) Explain Gray-scale Morphology.

———————

(6 pages)

Reg. No. : .....

Code No. : 6467 **Sub. Code : ZITM 31/ ZNTM 31**

M.Sc.(CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Information Technology /Networking and Information Technology - Core

INTERNET OF THINGS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. ———————— support point to point and publish - subscribe model routing and queuing.
   (a) DDS (b) AMQP
   (c) XMPP (d) MQTT

2. ———————— is a collections of wired Ethernet standards for the link layer.
   (a) 802.4 (b) 802.3
   (c) 802.2 (d) 802.5

3. Which one is not used as a communication protocol for M2M local area network?

(a) Wireless M-Bus (b) ModBus

(c) PLC (d) PCL

4. ——————— is a representation of physical entity in the digital world.

(a) Physical entity (b) Virtual entity

(c) Logical entity (d) Private Entity

5. Which keyword is used for function in Python language?

(a) Function (b) Def

(c) Fun (d) Define

6. In Raspberry Pi, Which command is used to search a file?

(a) locate (b) ls

(c) cat (d) lsusb

7. ——————— is a Python package that provides interfaces to Amazon Web Services (AWS).

(a) Boot (b) Boto

(c) Beta (d) Import

8. How many mode system include for smart lighting?

(a) 2 (b) 3

(c) 4 (d) 5

9. ——————— node runs the secondary NameNode process.

(a) Backup (b) JobTracker

(c) TaskTracker (d) DataNode

10. ——————— is an infrastructure automation and configuration management framework.

(a) YANG (b) Chef

(c) NETCONFIG (d) All of these

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Determine the functional block of IoT.

Or

(b) Explain how the IoT device used in environment give an example.

12. (a) Outline the M2M gateway with neat diagram.

Or

(b) Write the steps for IoT device system management with NETCONF-YANG.

13. (a) Difference between Package and Module in Python.

Or

(b) Clarify about Raspberry Pi Interfaces.

14. (a) Discuss about Django Architecture.

Or

(b) Write short notes on Amazon RDS.

15. (a) Explain the MapReduce Job Execution Workflow with neat diagram.

Or

(b) How to set up the Hadoop Cluster using Chef with neat diagram?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Determine the Logical design of IoT give an example.

Or

(b) Summarize the contribution of IoT device in Agriculture and Health and Lifestyle.

17. (a) Define SDN. Explain the Limitations of the conventional network architecture and different key elements of SDN.

Or

(b) Elaborate the steps involved in the IoT system design methodology.

18. (a) Explain briefly about control flow statement in Python give an example.

Or

(b) Demonstrate how to handling the file in Python with an example.

19. (a) Illustrate the design specification of loT Printer give an example.

Or

(b) Sketch the cloud storage model and communication APIs.

20. (a) Determine the deployment design and data analysis for Forest Fire Detection System with neat diagram.

Or

(b) Summarize the key concept of Puppet and how to setting up the Puppet server and Client.

———————

(6 pages) **Reg. No. :** .....

Code No. : 6468 **Sub. Code : ZITM 32/ ZNTM 32**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Networking and Information Technology — Core

DATA SCIENCE AND BIG DATA ANALYTICS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Data in ———— bytes size is called Big Data

   (a) Tera (b) Giga

   (c) Peta (d) Meta

2. ———— is a platform for developing data flows for the extraction, transformation, and loading (ETL) of huge datasets, as well as for data analysis.

   (a) Spark (b) HBase

   (c) Hive (d) Pig

3. ———————— general-purpose model and runtime framework for distributed data analytics.

(a) Mapreduce

(b) Spark

(c) Hive

(d) All of the mentioned above

4. The Hadoop framework is built in Java, which means that MapReduce applications do not need to be written in ————————

(a) C#

(b) C

(c) Java

(d) None of the mentioned above

5. Which of the following is another name for raw data?

(a) destination data

(b) eggy data

(c) secondary

(d) machine learning

6. Point out the correct statement

   (a) Nearly 80% of data analysis is spent on wrangling data

   (b) Nearly 20% of data analysis is spent on data dredging

   (c) Nearly 80% of data analysis is spent on the cleaning and preparing data

   (d) None of the mentioned

7. R is an ———————— programming language

   (a) GPL (b) Open source

   (c) Closed source (d) Definite source

8. Which of the following is finally produced by Hierarchical Clustering?

   (a) final estimate of cluster centroids

   (b) tree showing how close things are to each other

   (c) assignment of each point to clusters

   (d) all of the mentioned

9. Which of the following clustering requires merging approach?

   (a) Partitional

   (b) Hierarchical

   (c) Naive Bayes

   (d) None of the mentioned

10. A collection of information about a related topic is referred to as a ————————

(a) Visualisation

(b) Analysis

(c) Conclusion

(d) Data

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write the elements of data architecture.

Or

(b) Describe the drivers of Big Data.

12. (a) What are some of the fields in which R is commonly used for analysis?

Or

(b) Describe data input and export.

13. (a) What are the different types of analytical models?

Or

(b) What are the applications of association rules? Explain.

14. (a) How many classifications are there in data mining? Explain.

Or

(b) Explain in detail about genetic algorithm.

15. (a) What technologies are used in analytics for unstructured data? Explain.

Or

(b) Explain aggregates.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write in detail about Data Analytics Life Cycle

Or

(b) Explain in detail about model based techniques.

17. (a) How many data structures does R language have? Explain.

Or

(b) What exactly Data Analytics using R contains?

18. (a) Compare linear regression and logistic regression.

Or

(b) Discuss in detail about clustering.

19. (a) Write a detailed notes on decision tree algorithms.

Or

(b) Discuss in detail about text analysis.

20. (a) Explain the tools in database analytics.

Or

(b) Explain data visualization in detail.

———————

(6 pages)

Reg. No. : .....

Code No. : 6469 **Sub. Code : ZITM 33**

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Third Semester

Information Technology — Core

SOFTWARE PROJECT MANAGEMENT

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The process each manager follows during the life of a project is known as

   (a) Project management

   (b) Manager life cycle

   (c) Project management life cycle

   (d) All of the mentioned

2. Quality planning is the process of developing a quality plan for

(a) team (b) project

(c) customers (d) project manager

3. Which one of the following is not included in a project scope document?

(a) The deliverables for the project

(b) The features and functions that are to be included in the software

(c) The time schedule

(d) The project plan

4. Which of the following is incorrect activity for the configuration management of a software sytem?

(a) Internship management

(b) Change management

(c) Version management

(d) System management

5. Which of the following is the process of understanding the knowledge, skills, and abilities needed to manage a task and then matching the team members with the right skills to do that work?

(a) Benchmarking (b) Expediting

(c) Procurement (d) Delegation

6. ———— is the application of knowledge, skills, tools and techniques to project activities to meet project requirements.

(a) Project management

(b) Program management

(c) Project portfolio management

(d) Requirements management

7. Project management plans should be ————

(a) Dynamic (b) Flexible

(c) Receptive to change (d) All of the above

8. What is the main goal of project cost communication?

(a) To complete a project for as little cost as possible

(b) To complete a project within an approved budget

(c) To provide truthful and accurate cost information on projects

(d) To ensure that an organization's money is used wisely

9. Which of the following is true about change requests that result in corrective or preventive actions?

(a) They result in changes to scope

(b) They result in changes to the project plan

(c) They significantly increase risk

(d) They do not usually affect project baselines

10. What does the S stand for in a SWOT analysis?

(a) Strategy (b) Solution

(c) System (d) Strength

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Justify organizational influences on project management.

Or

(b) Categorize the process groups in project management.

12. (a) Summarize the Kanban methods.

Or

(b) Categorize the epic features.

13. (a) Generalize the estimate activity duration.

Or

(b) Explain the monitor and control project work.

14. (a) Construct the steps to acquire project team.

Or

(b) Design an effective quality control.

15. (a) Evaluate the plan for close procurement.

Or

(b) Summarize the plan risk response.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Distinguish project from operational work.

Or

(b) Explain the enterprise environmental factors in project management.

17. (a) Develop the lifecycle selection of SCRM.

Or

(b) Design any one of the process model.

18. (a) Summarize the steps in project integration management.

Or

(b) Design a project management team.

19. (a) Categorize the functions of human resource management.

Or

(b) Evaluate the steps in project quality management.

20. (a) Write the steps in project procurement management.

Or

(b) Devise to monitor and control risk.

———————

(6 pages)

Reg. No. : .....

Code No. : 6470 **Sub. Code : ZITM 34/ ZNTM 34**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Information Technology/Networking and Information Technology

RESEARCH METHODOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A research problem is feasible only when
   (a) it is researchable
   (b) it is new and adds something to knowledge
   (c) it has utility and relevance
   (d) all the above

2. Which of the following is not a criterion for the statement of a good research problem?

   (a) Expression of relationship between/among variables

   (b) Clarity and unambiguousness

   (c) Possibility of empirical testing

   (d) Possibility of use of statistical analysis

3. A literature review is based on the assumption that

   (a) copy from the work of others

   (b) knowledge accumulates and learns from the work of others

   (c) knowledge disaccumulation

   (d) none of the above

4. When planning your literature search you need to

   (a) Have clearly defined research questions and objectives

   (b) Define the parameters of your research

   (c) Generate keywords and search terms

   (d) All the above

5. The last page of research report is

   (a) Appendix (b) Bibliography

   (c) Index (d) Title page

6. The list of special terms and phrases used is given in the form of a

(a) Foot note (b) Quotations

(c) Glossary (d) Bibliography

7. What does a trademark protect?

(a) An invention

(b) A work of art

(c) The look, shape and feel of a product

(d) Logos, names and brands

8. How long do patents usually last for?

(a) 10 years (b) 20 years

(c) 40 years (d) 60 years

9. Patent protects

(a) Discovery (b) Invention

(c) New process (d) New invention

10. In India the literary work is protected until

(a) Lifetime of author

(b) 25 years after the death of author

(c) 40 years after the death of author

(d) 60 years after the death of author

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Write on scope and objectives of research problem.

Or

(b) Comment on errors in selecting a research.

12. (a) Why is plagiarism and ethical issue in research?

Or

(b) How does to make literary review more ethical?

13. (a) What is the importance of effective technical writing?

Or

(b) Comment on the roles and responsibilities of the review committee.

14. (a) Write the difference between trade and copyright.

Or

(b) Write on intellectual property rights (IPR) in international forum.

15. (a) What do you understand by licensing and transfer of technology in patent right?

Or

(b) How are biological materials protected in IPR?

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Discuss on meaning and sources of research problem.

Or

(b) Comment on approaches of investigation of solution for research problem.

17. (a) Write in detail on various approaches in literature studies.

Or

(b) What is research ethics? Why is it important?

18. (a) What are the element of a formal report? Write the preliminary steps and procedures followed in writing reports.

Or

(b) How does a good research proposal can be developed?

19. (a) Discuss on the different types of intellectual property rights.

Or

(b) Explain in detail on the process of patenting and its development.

20. (a) Write in detail on the new development in IPR.

Or

(b) Explain the procedure to be followed for registration of geographical indications.

———————

(6 pages)

Reg. No. : .....

Code No. : 6471 **Sub. Code : ZITE 31/ ZNTE 31**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Information Technology/Networking and Information Technology

Elective — WEB SERVICES

(For those who joined in July 2011 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. ———— is used to convert your application into Web-Application.

   (a) Struts services (b) Web services

   (c) Java service (d) Browser action

2. The basic web services platform is combination of ———— and ————.

(a) CSS + JAVA (b) CSS + HTTP

(c) XML + HTTP (d) XML + HTML

3. Web services communicate using ————

(a) Open protocols (b) Open-close protocols

(c) Mixed protocols (d) Close protocols

4. Which of the following is correct about WSDL?

(a) WSDL is an XML-based language for describing web services and how to access them

(b) WSDL was developed jointly by Microsoft and IBM

(c) WSDL is an XML based protocol for information exchange in decentralized and distributed environments

(d) All of the above

5. Which of the following layer in web service protocol stack is responsible for centralizing services into a common registry and providing easy publish/find functionality?

(a) Service transport (b) XML messaging

(c) Service description (d) Service discovery

6. In contrast, the contract-first approach encourages you to think of the service contract first in terms of

(a) XML (b) XML schema(.xsd)
(c) WSDL (d) All of the mentioned

7. WSDL stands for ————————

(a) Web Services Description Language
(b) Web Services Design Language
(c) Web Services Divide Language
(d) Web Services Development Language

8. Coding and decoding, and transporting the data is performed by ————————

(a) XML and UDDI (b) XML and SOAP
(c) HTML and HTTP (d) HTML and SOAP

9. ———————— handles service description in web services.

(a) WSDL (b) SOAP
(c) WWW (d) REST

10. What is the purpose of SOAP in a web service?

(a) A web services takes the help of SOAP to tag the data, format the data
(b) A web service takes the help of SOAP to transfer a message
(c) A web service takes the help of SOAP to describe the availability of service
(d) A web service takes the no help of SOAP

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Summarize the overview of distributed computing.

Or

(b) Explain the industry standards of web services.

12. (a) Describe the main advantages of SOAP.

Or

(b) Point out the introduction to UDDI specification.

13. (a) Differentiate between the portals and service management.

Or

(b) What are the common attacks of web services? Explain.

14. (a) Elaborate the steps to sample source code to develop web services.

Or

(b) Write down the maintenance of web services.

15. (a) Bring out the concept of enabling technologies for XML based distributed system.

Or

(b) Mention the advantages of Tomcat application server.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Determine the applications that consume web services.

Or

(b) Outline the technologies and concepts underlying web services.

17. (a) Discuss the exchange of information between applications in distributed environment.

Or

(b) What are the network protocols to back end databases? Explain.

18. (a) Draw and explain the static and interactive aspects of system interface and its implementation.

Or

(b) Analysis the network bandwidth utilization with neat diagram.

19. (a) Demonstrate the seamless porting to multiple devices and platforms.

Or

(b) Examine the client application to meet customer's requirement.

20. (a) Formulate the web services and application onto Tomcat application server.

Or

(b) Evaluate the architecture of axis SOAP server with neat diagram.

———————

(6 pages)

Reg. No. : .....

Code No. : 6472 **Sub. Code : ZITE 32/ ZNTE 32**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Information Technology/Networking and Information Technology

Elective — CLOUD COMPUTING

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. ———— computing refers to applications and services that run on a distributed network using virtualized resources.

   (a) Distributed (b) Cloud

   (c) Soft (d) Parallel

2. Which of the following cloud concept is related to pooling and sharing of resources?

(a) Polymorphism

(b) Abstraction

(c) Virtualization

(d) None of the mentioned

3. ———— has many of the characteristics of what is now being called cloud computing.

(a) Internet (b) Softwares

(c) Web services (d) All of the mentioned

4. Which of the following can be identified as cloud?

(a) Web applications (b) Intranet

(c) Hadoop (d) All of the mentioned

5. ———— refers to the location and management of the cloud's infrastructure.

(a) Service (b) Deployment

(c) Application (d) All of the mentioned

6. Which of the following is deployment model?

(a) public (b) private

(c) hybrid (d) all of the mentioned

7. Cloud computing is a ———— system and it is necessarily unidirectional in nature.

(a) Stateless (b) Stateful

(c) Reliable (d) All of the mentioned

8. Which of the following is most important area of concern in cloud computing?

(a) security (b) storage

(c) scalability (d) all of the mentioned

9. You can't count on a cloud provider maintaining your ———— in the face of government actions.

(a) scalability

(b) reliability

(c) privacy

(d) none of the mentioned

10. Which of the following is one of the unique attribute of cloud computing?

(a) utility type of delivery

(b) elasticity

(c) low barrier to entry

(d) all of the mentioned

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Summarize the characteristics of cloud computing.

Or

(b) Explain the functions of distributed system.

12. (a) Describe the pros and cons of virtualization.

Or

(b) Differentiate between the public cloud and private cloud.

13. (a) Enumerate the design considerations of cloud application.

Or

(b) What are the designs approaches used to development in python? Explain.

14. (a) Point out the steps to installation of python for cloud.

Or

(b) How will you declare a function in python? Give example.

15. (a) Elaborate the purpose of clustering big data.

Or

(b) Mention the need of live video stream app.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Determine the different types cloud platforms and technologies.

Or

(b) Compare the utility oriented computing and service oriented computing.

17. (a) Discuss the cloud reference model with diagram.

Or

(b) What are the types of content delivery services of cloud? Explain.

18. (a) Draw and explain the implementation of map reduce model.

Or

(b) Analysis the approaches of data storage in cloud.

19. (a) Compare the Amazon web services and windows azure.

Or

(b) Examine the implementation of file handling in python.

20. (a) Outline the streaming protocols in multimedia cloud.

Or

(b) Evaluate the authentication and authorization of cloud security.

———————

(6 pages)

Reg. No. : .....

Code No. : 6473 **Sub. Code : ZITE 33/ ZNTE 33**

M.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Information Technology/Networking and Information Technology

Elective — APPLICATION DEVELOPMENT USING ANDROID

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Android is ————

(a) an operating system

(b) a web browser

(c) a web server

(d) a client

2. Under which of the following android is licensed?

(a) OSS (b) Sourceforge

(c) Apache/MIT (d) Web

3. For which of the following android is mainly developed?

(a) Servers (b) Desktops

(c) Laptops (d) Mobile devices

4. Which of the following virtual machine is used by the Android operating system?

(a) JVM

(b) Dalvik virtual machine

(c) Simple virtual machine

(d) Dynamic virtual machine

5. APK stands for ————————

(a) Android Phone Kit

(b) Android Page Kit

(c) Android Package Kit

(d) Mobile Package Kit

6. What does API stand for?

(a) Application Programming Interface

(b) Android Programming Interface

(c) Android Page Interface

(d) Application Page Interface

7. Which of the following kernel is used in Android?

(a) MAC (b) Windows

(c) Linux (d) Redhat

8. Which of the following android component displays the part of an activity on screen?

(a) View (b) Manifest

(c) Intent (d) Fragment

9. Which of the following is the parent class of service?

(a) context

(b) object

(c) contextThemeWrapper

(d) contextWrapper

10. Which of the following is the topmost layer of android architecture?

(a) System libraries and Android Runtime

(b) Linux Kernel

(c) Applications

(d) Applications framework

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Summarize the managing activity transitions with intents.

Or

(b) Explain the core files and directories of the android application.

12. (a) Describe the retrieving the application context.

Or

(b) Point out the organizing application navigation with activities and intents.

13. (a) Distinguish between the CheckBox and ToggleButton controls.

Or

(b) Explain the retrieving data from users with EditText.

14. (a) Elaborate the managing the testing environment in android application.

Or

(b) Write down the protecting your intellectual property.

15. (a) Bring out the steps to managing data using sqlite.

Or

(b) Mention the steps to using android networking APIs.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Determine the lifecycle of an android activity with neat diagram.

Or

(b) Outline the registering activities in the android manifest.

17. (a) Discuss the performing application tasks with activities.

Or

(b) How will you configuring other intent filters in android manifest? Explain.

18. (a) What are the built-in layout classes? Explain.

Or

(b) Analysis the step to creating user interfaces in android.

19. (a) Demonstrate the maximizing testing coverage for android application.

Or

(b) Examine the packaging your application for publication.

20. (a) Formulate the uses of android telephony APIs.

Or

(b) Evaluate the step to deploying android application to the world.

———————